

Claims

- [c1] 1. An improved vertical lift assembly for use with a conveyor, comprising:
- a stationary member;
 - a raisable member mounted on the stationary member for vertical movement between a first recessed position and a second intercepting position;
 - an intercepting means mounted on the raisable member;
 - a lift means for selectively raising the raisable frame between the first and second positions; and
 - at least three of a hinge for joining in planar relationship the raisable member to the stationary member, each hinge comprising a first stationary joint affixed to the stationary member, a second joint affixed to the raisable member and an third joint intermediate between and in communication with both the first joint and the second joint;
- wherein in the first position, an upper engagement surface of the intercepting means is in a recessed position below a transfer surface of a conveyor and out of potential engagement with an object on the conveyor transfer surface; and wherein in the second position, the upper engagement surface is in a raised position, above the

transfer surface of the conveyor for selected engagement with the object on the transfer surface.

- [c2] 2. The vertical lift assembly according to claim 1 wherein the hinges prevent tilting of the raisable member relative to the stationary member.
- [c3] 3. The vertical lift assembly according to claim 1 wherein the hinge comprises a roller chain.
- [c4] 4. The vertical lift assembly according to claim 3 wherein each of the stationary member and the raisable member have a rectangular planar shape, and at least one hinge is positioned proximate a side of the members.
- [c5] 5. The vertical lift assembly according to claim 4 wherein a hinge is positioned proximate each end of the sides of the members.
- [c6] 6. The vertical lift assembly according to claim 4 wherein the two hinges at either end of the side are joined together with a support bracket.
- [c7] 7. The vertical lift assembly according to claim 4 wherein the hinges are positioned at each corner of the members, and operate at an angle to each adjacent side of the members.
- [c8] 8. The vertical lift assembly according to claim 1 wherein

the lift means comprises a hydraulic or pneumatic cylinder.

[c9] 9. The vertical lift assembly according to claim 8 wherein the assembly further comprises a stopping means for controlling the movement of the raisable member away from the stationary member.

[c10] 10. The vertical lift assembly according to claim 1 wherein the intercepting means is selected from a stop means, and a powered diverter means comprising a plurality of a powered transfer loop that is disposed between a pair of adjacent, spaced rollers of the conveyor.

[c11] 11. An improved diverting conveyor unit for diverting objects from a conveyor assembly, the diverting conveyor unit comprising:

a conveyor assembly comprising:

a support structure

a plurality of spaced rollers having an upper transfer surface, mounted in the support structure;

a drive apparatus for driving the rollers; and

a main direction control device for operating the drive apparatus;

a vertical lift diverter assembly comprising:

a stationary member;

a raisable member mounted on the stationary member

for vertical movement between a first recessed position and a second diverting position;
a powered diverter means mounted on the raisable member;
a lift means for selectively raising the raisable frame between the first and second positions; and
at least three of a hinge for joining in planar relationship the raisable member to the stationary member, each hinge comprising a first stationary joint affixed to the stationary member, a second joint affixed to the raisable member, and an third joint intermediate between and in communication with both the first joint and the second joint;
wherein in the first position, an upper engagement surface of the powered diverter means is recessed below the transfer surface of the conveyor and out of potential diverting engagement with an object on the conveyor transfer surface; and wherein in the second position, the upper engagement surface is raised above the transfer surface of the conveyor for selected diverting engagement with the object on the transfer surface.

[c12] 12. The diverting conveyor unit according to claim 11 wherein the hinges prevent tilting of the raisable member relative to the stationary member.

- [c13] 13. The diverting conveyor unit according to claim 11 wherein the hinge comprises a roller chain.
- [c14] 14. The diverting conveyor unit according to claim 11 wherein each of the stationary member and the raisable member have a rectangular planar shape, and at least one hinge is positioned proximate each end of the sides of the members.
- [c15] 15. The diverting conveyor unit according to claim 14 wherein the two hinges at either end of the side are joined together with a support bracket.
- [c16] 16. The diverting conveyor unit according to claim 14 wherein the hinges are positioned at each corner of the members, and operate at an angle to each adjacent side of the members.
- [c17] 17. The diverting conveyor unit according to claim 11 wherein the lift means comprises a hydraulic or pneumatic cylinder.
- [c18] 18. The diverting conveyor unit according to claim 17 wherein the assembly further comprises a stopping means for controlling the movement of the raisable member away from the stationary member.
- [c19] 19. The diverting conveyor unit according to claim 11

wherein the powered diverter means comprises a plurality of a powered transfer loop that is disposed between a pair of adjacent, spaced rollers.

- [c20] 20. An improved vertical lift assembly for use with raising an object, comprising:
- a stationary member;
 - a raisable member mounted on the stationary member for vertical movement between a first position and a second position;
 - a lift means for selectively raising the raisable frame between the first and second positions; and
 - at least three of a hinge for joining in planar relationship the raisable member to the stationary member, each hinge comprising a first stationary joint affixed to the stationary member, a second joint affixed to the raisable member, and an third joint intermediate between and in communication with both the first joint and the second joint.